OPERATING SUMMARY

1974

LABORATORY & RESEARCH LIBRARY
MINISTRY OF THE ENVIRONMENT

LIBRARY COPY
NOV 2 1975
MINISTRY OF THE
ENVIRONMENT

LAB

TOWN OF
WALLACEBURG

WATER POLLUTION CONTROL PLANT

Copyright Provisions and Restrictions on Copying:

This Ontario Ministry of the Environment work is protected by Crown copyright (unless otherwise indicated), which is held by the Queen's Printer for Ontario. It may be reproduced for non-commercial purposes if credit is given and Crown copyright is acknowledged.

It may not be reproduced, in all or in part, for any commercial purpose except under a licence from the Queen's Printer for Ontario.

For information on reproducing Government of Ontario works, please contact ServiceOntario Publications at copyright@ontario.ca

Ontario

MINISTRY OF THE ENVIRONMENT

MINISTER
Honourable William G. Newman

DEPUTY MINISTER
E. Biggs

ASSISTANT DEPUTY MINISTER
REGIONAL OPERATIONS
J. Barr

REGIONAL OPERATIONS DIVISION

DIRECTOR, SOUTHWESTERN REGION
D. McTavish

MANAGER, UTILITY OPERATIONS
A. Ladbrooke

WALLACEBURG

WATER POLLUTION CONTROL PLANT

MINISTRY OF THE ENVIRONMENT

1974 ANNUAL OPERATING SUMMARY

prepared by
Plant Performance Unit
TECHNICAL SERVICES BRANCH
T. Cross, Director

CONTENTS

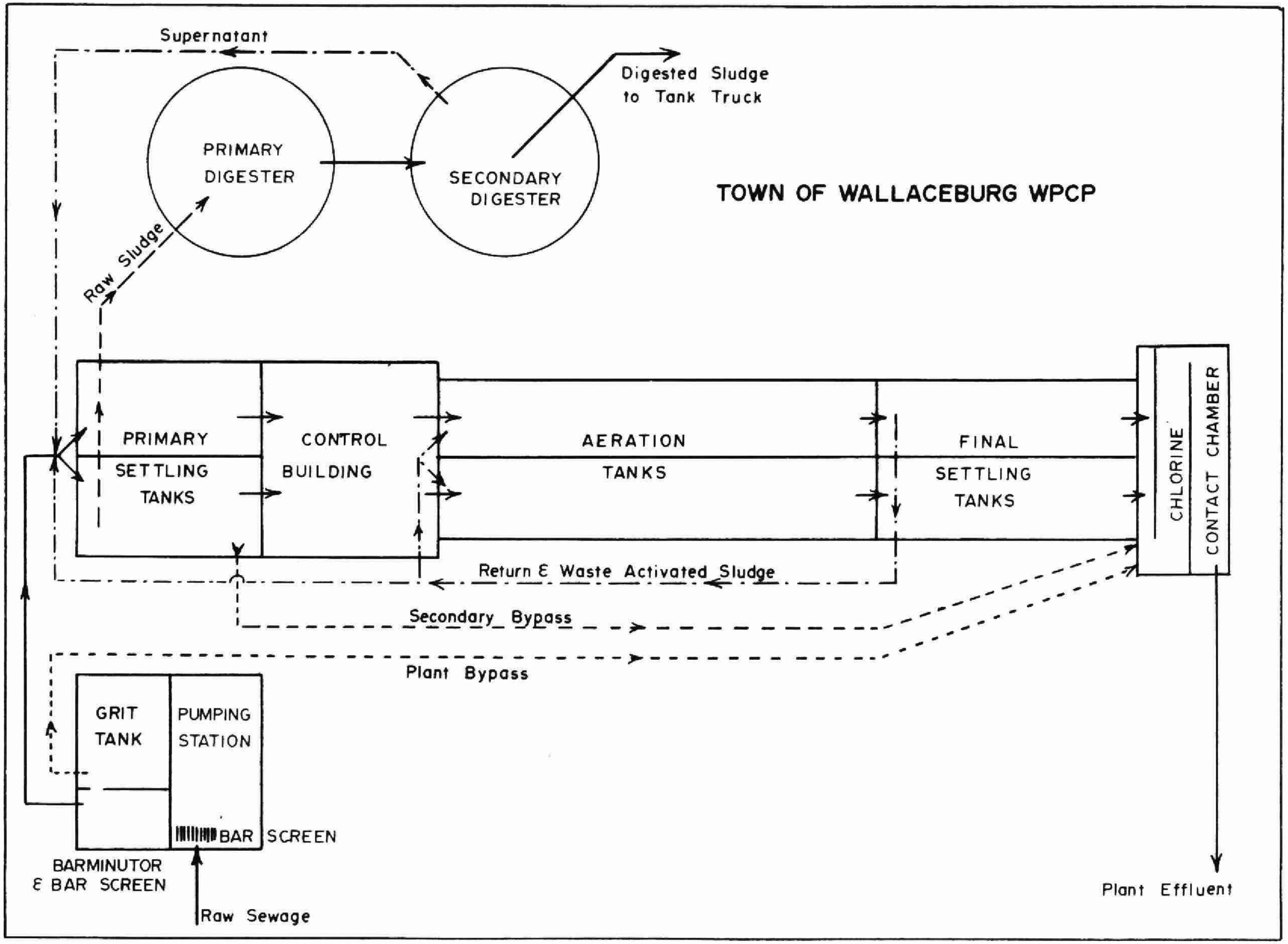
Title Page 1

Flow Diagram 4

Design Data 5

Operating Cost 6

Process Data 8


Supernatant
Digested Sludge to Tank Truck
PRIMARY DIGESTER
SECONDARY DIGESTER
TOWN OF WALLACEBURG WPCP
Raw Sludge
PRIMARY SETTLING TANKS
CONTROL BUILDING
AERATION TANKS
FINAL SETTLING TANKS
CHLORINE CONTACT CHAMBER
Return & Waste Activated Sludge
Secondary Bypass
Plant Bypass
GRIT TANK
PUMPING STATION
BAR SCREEN
BARMINUTOR & BAR SCREEN
Raw Sewage
Plant Effluent

DESIGN DATA

PROJECT	Town of Wallaceburg WPCP
PROJECT NO.	1-0087-67
DESIGN POPULATION	13,500
DESIGN LOADING	1.5 IMGD
DESIGN BOD LOADING	3,000 lb/day
DESIGN SS LOADING	3750 lb/day

COMMINUTION

No. of units - 1
Type: Barminutor

GRIT REMOVAL

No. of tanks - 1
Type: Aerated by diffusers

PRIMARY SEDIMENTATION

No. of tanks - 2
Tank dimensions: 16'x48'x14.5' each
Detention: 2.22 hours

AERATION

No. of tanks - 2
Type: aerated by diffusers
Tank dimensions: 16'x106'x13.25' each
Detention: 4.49 hours

SECONDARY SEDIMENTATION

No. of tanks - 2
Tank dimensions: 72'x16'x12.5' each
Detention: 2.68 hours

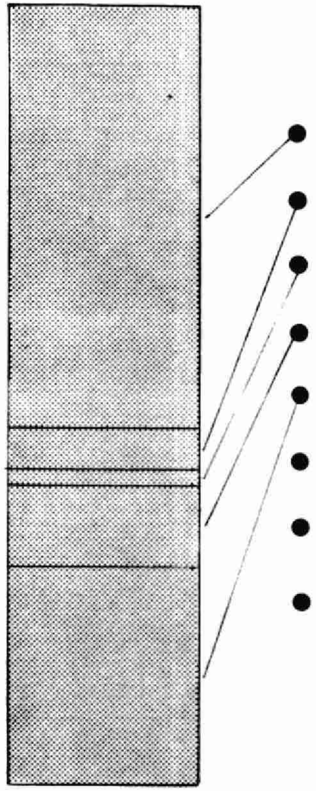
CHLORINATION

No. of tanks - 1
Detention: 21.8 min.

SLUDGE DIGESTION

No. of tanks - 2
Tank dimensions: one @ 35' dia x 19'
one @ 35' x 18.5'
Total Detention: 21.1 days

ANNUAL COSTS



1974 OPERATING COSTS

	%
● SALARIES & WAGES	53
● EMPLOYEE BENEFITS	5
● TRANSPORTATION & COMMUNICATIONS	2
● SERVICES	11
● SUPPLIES & EQUIPMENT	29
● AQUISITION/CONSTRUCTION OF PHYSICAL ASSETS	
● TRANSFER PAYMENTS	
● OTHER TRANSACTIONS	

YEARLY OPERATING COSTS

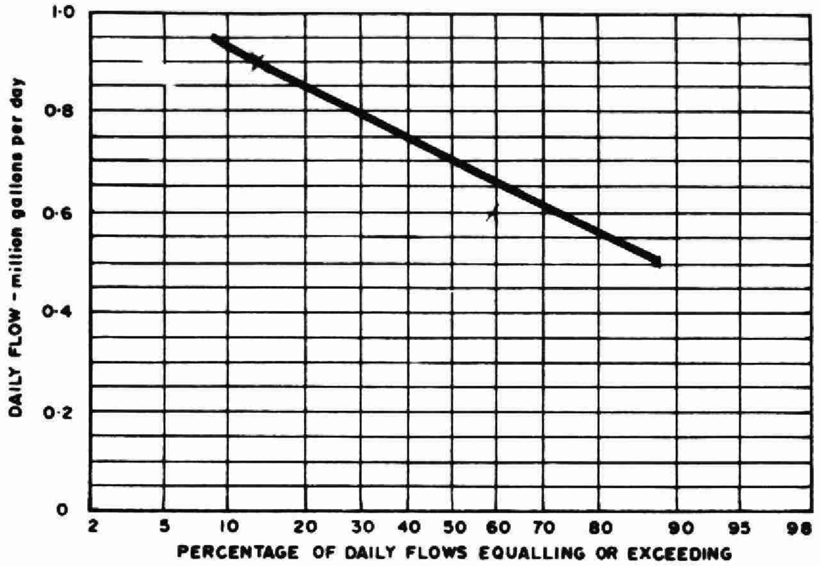
YEAR	SEWAGE TREATED in million gallons	TOTAL OPERATING COSTS	UNIT COSTS	
			$/M.G	¢/lb BOD
1974	261.16	86,642	332	40

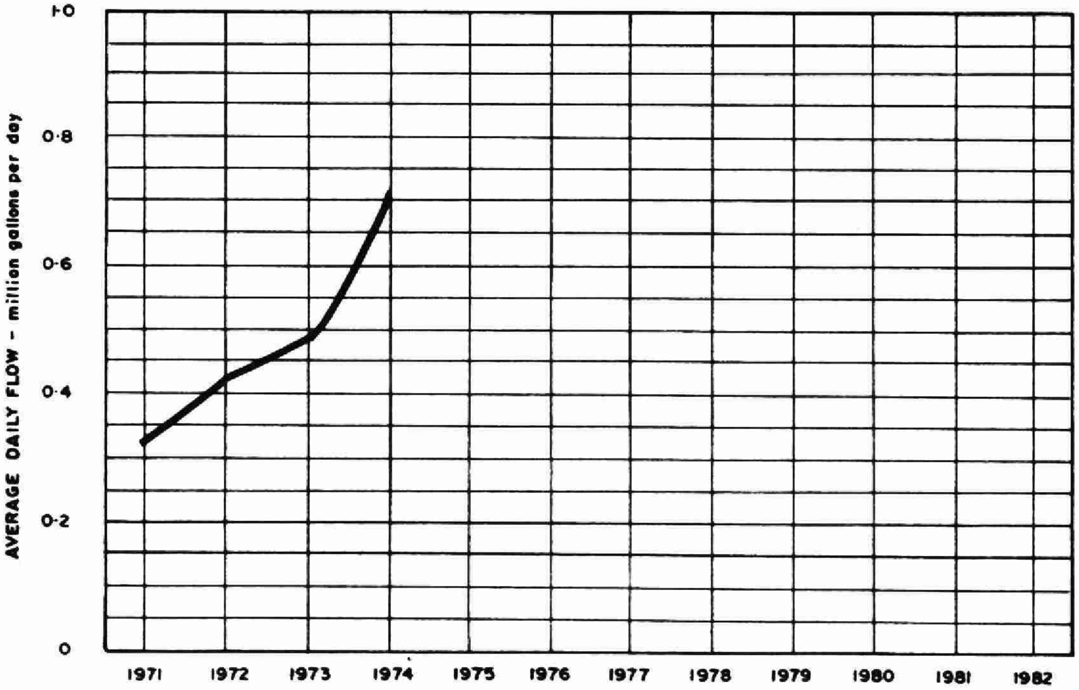
OPERATING EXPENDITURES

Regular Staff	$ 44,947	$
Casual (Unclassified) Staff	-	
TOTAL SALARIES AND WAGES		44,947
TOTAL EMPLOYEE BENEFITS		4,699
TOTAL TRANSPORTATION AND COMMUNICATIONS		1,922
Insurance	978	
Sludge Haulage	5,166	
Repairs and Maintenance	2,132	
Other Services	1,542	
TOTAL SERVICES		9,818
Machinery and Equipment	7,423	
Chemicals	424	
Utilities	12,236	
Other Supplies and Equipment	5,173	
TOTAL SUPPLIES AND EQUIPMENT		25,256
TOTAL AQUISITION/CONSTRUCTION OF PHYSICAL ASSETS		-
TOTAL TRANSFER PAYMENTS		-
OTHER TRANSACTIONS		-
GRAND TOTAL	GRAND TOTAL	$ 86,642

PROCESS DATA

FLOWS



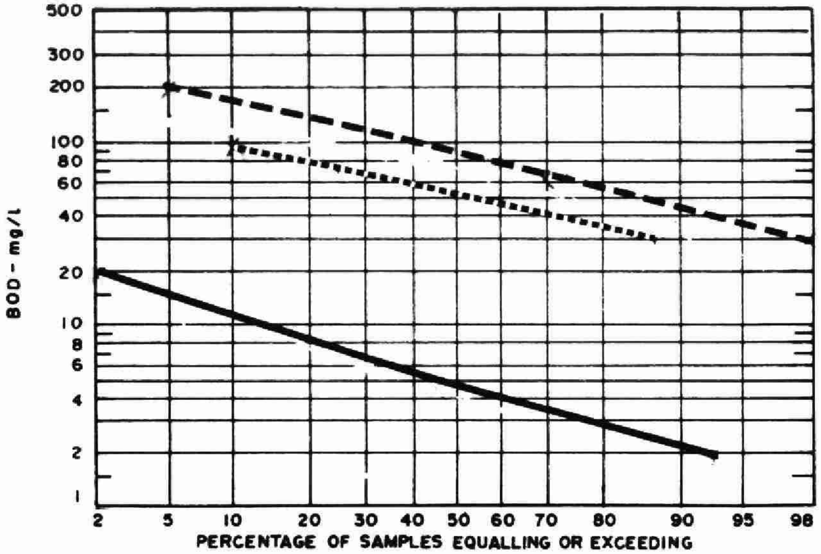


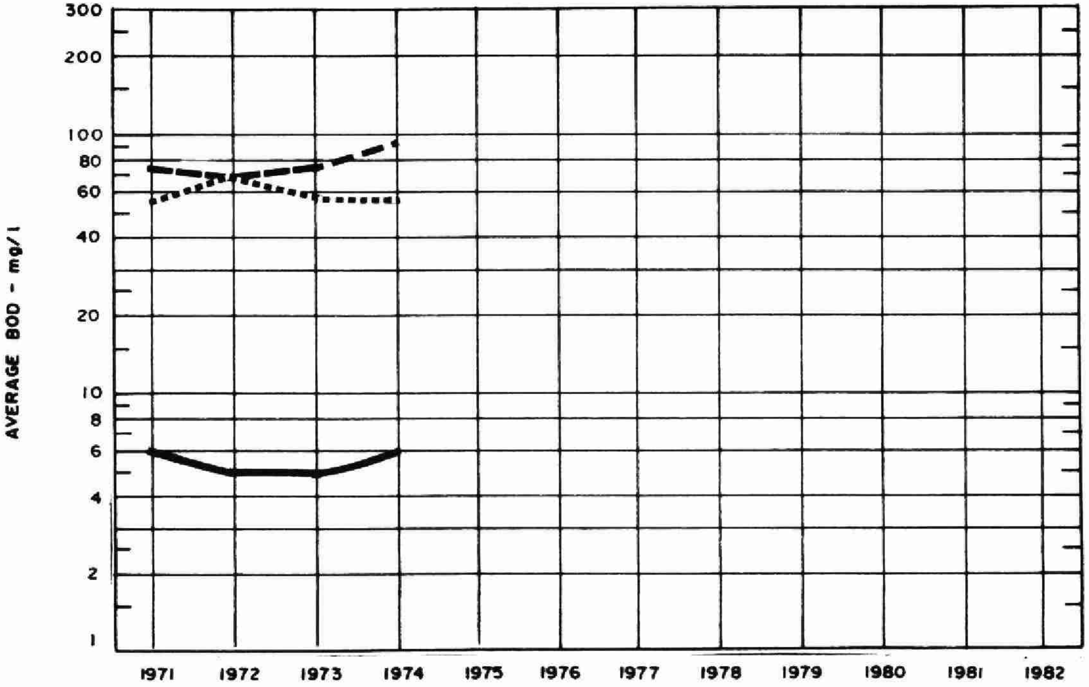
DESIGN CAPACITY 1·5 MGD

PLANT PERFORMANCE

MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT
	million gallons	mil. gal	mgd	mg/l	mg/l	%	10^3 pounds	mg/l	mg/l	%	10^3 pounds	mg/l P	mg/l P
JAN	24.32	.78	1.46	44	4	91	10	67	9	86	14	3.4	.5
FEB	20.81	.74	2.00	50	9	82	8	70	7	90	13	3.3	.3
MAR	29.86	.96	2.30	46	20	57	8	85	9	89	23	3.4	.4
APR	25.95	.86	1.37					82	5	94	20	3.2	
MAY	30.72	.99	1.96	74	9	88	20	110	5	95	32	4.3	.5
JUNE	21.26	.73	.93	73	4	95	15	122	3	98	25	4.1	.5
JULY	20.53	.66	.82	95	4	96	19	115	4	97	23	4.5	.8
AUG	17.83	.58	.68	84	4	95	14	97	3	97	17	4.2	.8
SEPT	16.06	.53	.61	135	5	96	21	121	3	98	19		.8
OCT	15.17	.49	.55	109	5	95	16	110	4	96	16	4.9	.9
NOV	16.26	.54	.66	105	5	95	16	159	5	97	25	4.8	1.2
DEC	22.39	.72	.87	86	8	91	17	109	13	88	21	4.8	.4
TOTAL	261.16	-	-	-	-	-	214	-	-	-	256	-	-
AVG.		.72	MAXIMUM 2.30	88	6	93	19	104	6	94	21	3.8	.5
No. of Samples	-	-	-	43	43	-	-	265	265	-	-	33	45

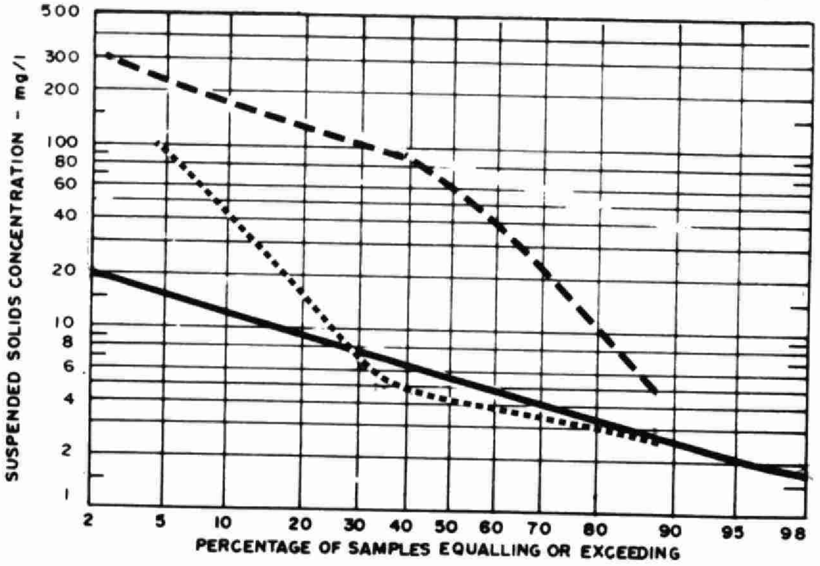
BIOCHEMICAL OXYGEN DEMAND

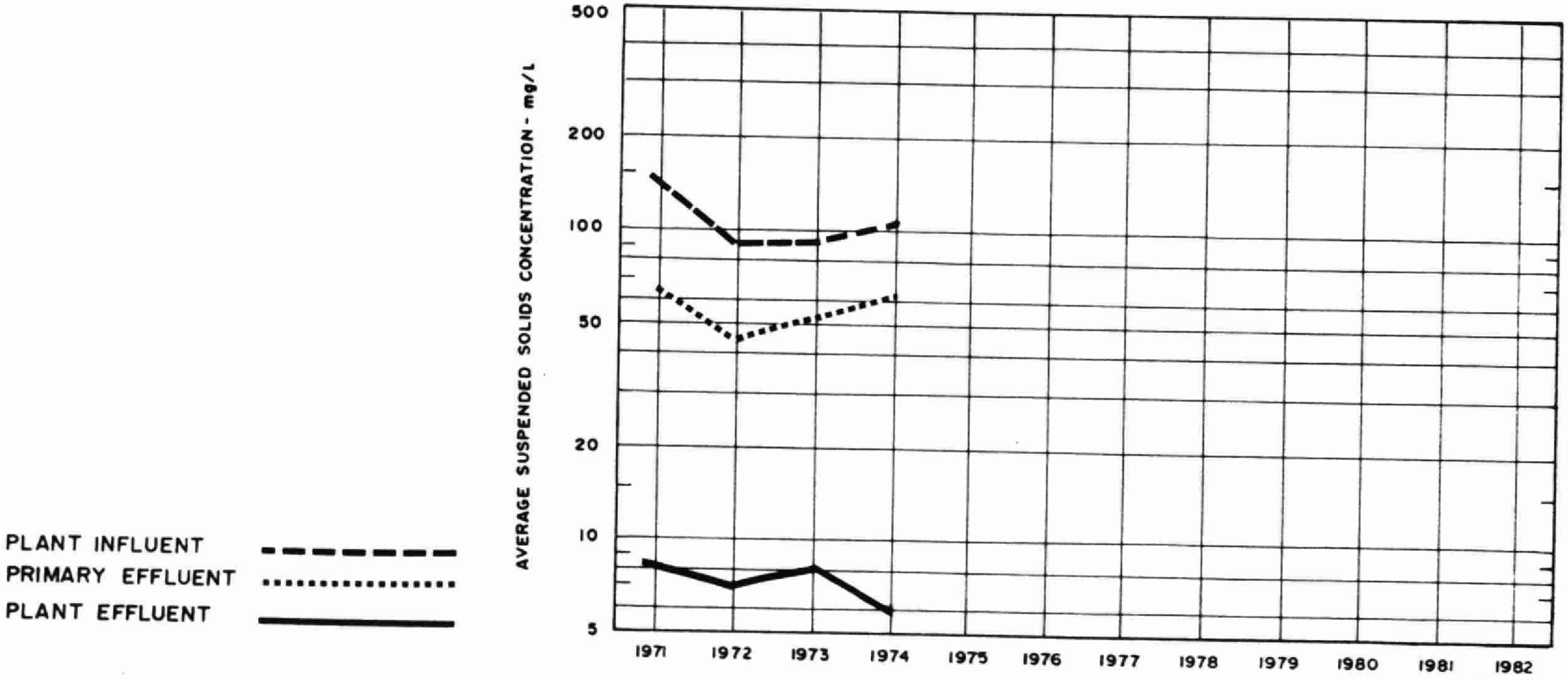




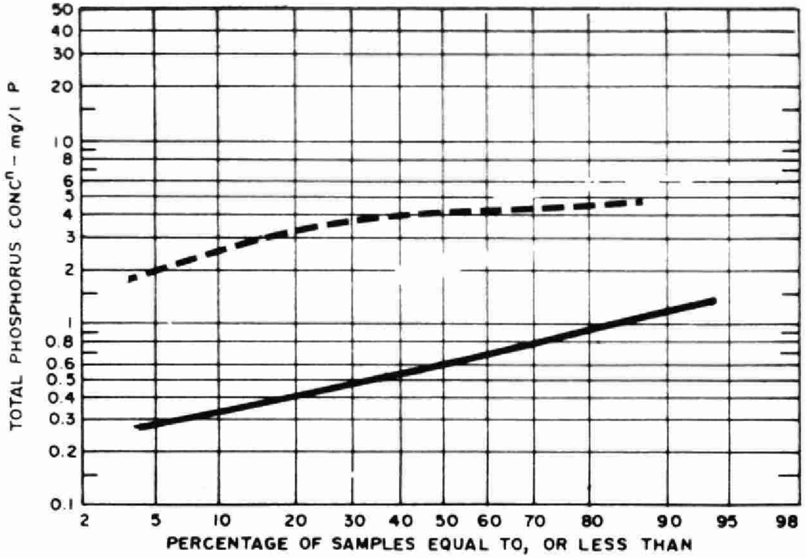
PLANT INFLUENT - - - - - -
PRIMARY EFFLUENT ················
PLANT EFFLUENT ———

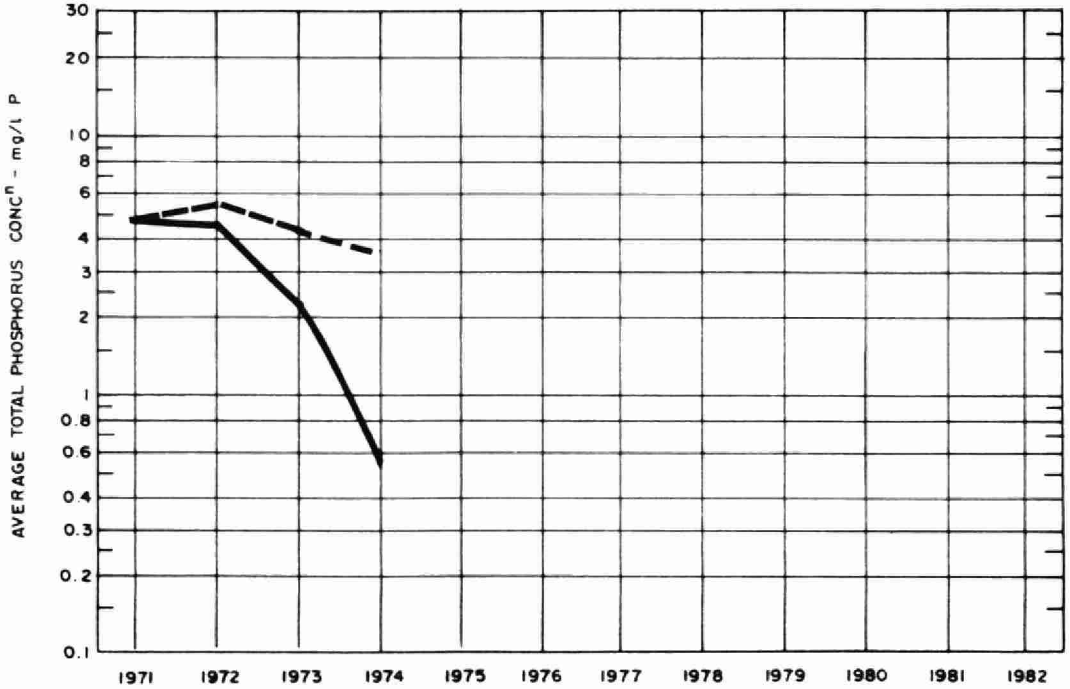
SUSPENDED SOLIDS





PHOSPHORUS

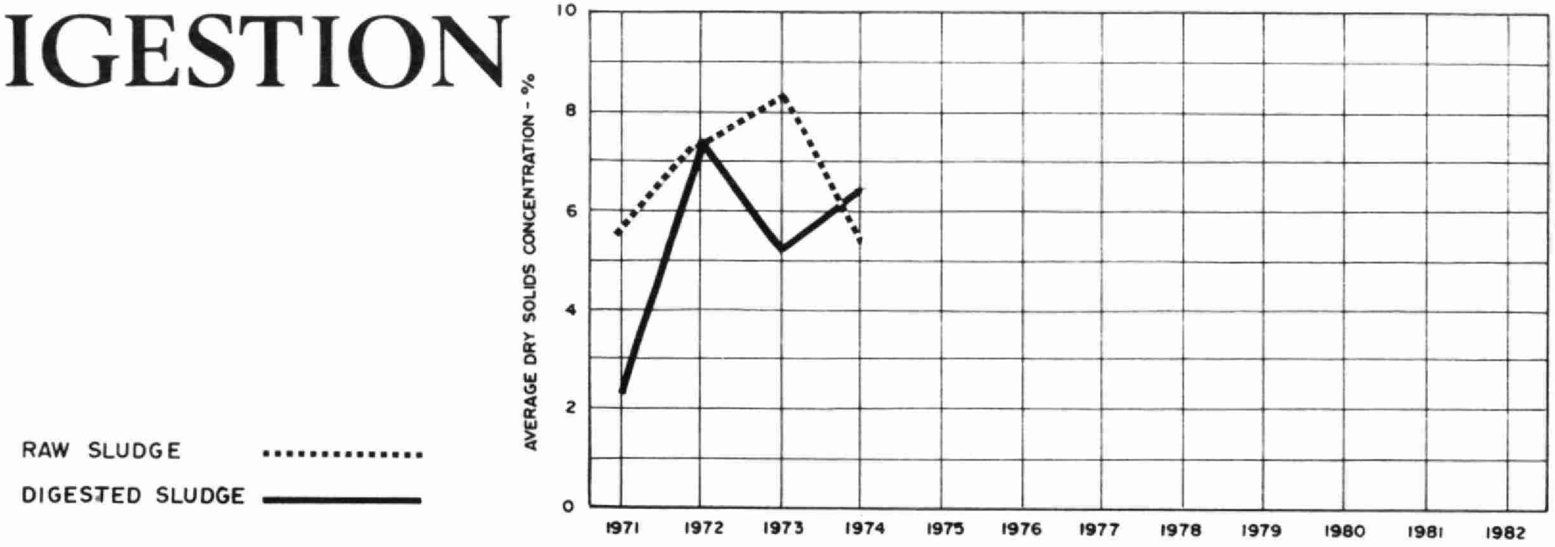


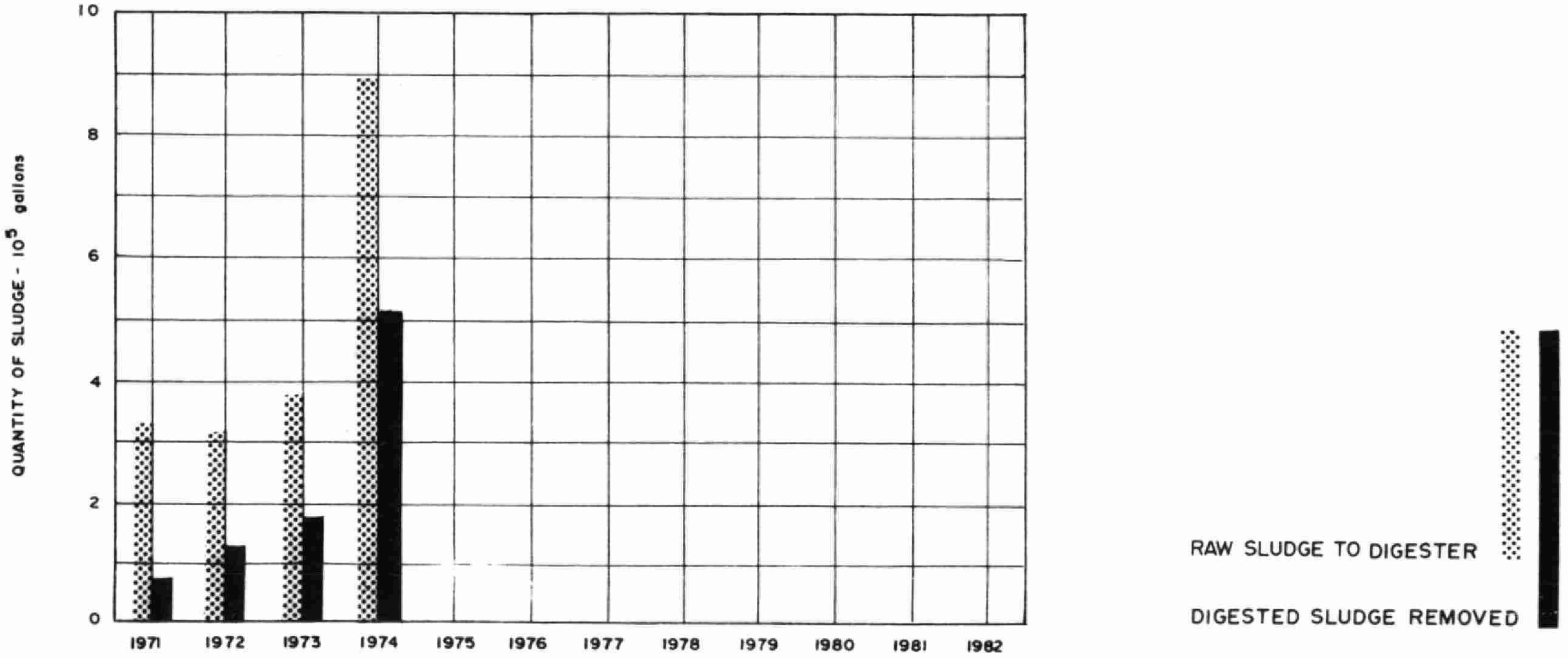


PLANT INFLUENT - - - - - -

PLANT EFFLUENT ———

DIGESTION


RAW SLUDGE ··············
DIGESTED SLUDGE ━━━━━━
AVERAGE DRY SOLIDS CONCENTRATION - %
10
8
6
4
2
0
1971
1972
1973
1974
1975
1976
1977
1978
1979
1980
1981
1982


QUANTITY OF SLUDGE - 10^5 gallons
10
8
6
4
2
0
1971
1972
1973
1974
1975
1976
1977
1978
1979
1980
1981
1982
RAW SLUDGE TO DIGESTER ▨
DIGESTED SLUDGE REMOVED ■

TREATMENT DATA

	GRIT	CHLORINATION		PRIMARY EFFLUENT		AERATION			SLUDGE DIGESTION and DISPOSAL							
									RAW SLUDGE			DIGESTED SLUDGE			SUPERNATANT	
MONTH	QUANTITY REMOVED cubic feet	Cl_2 USED pounds	AVG. DOSE mg/l	BOD mg/l	SUSPENDED SOLIDS mg/l	MLSS CONC mg/l	F/M day^{-1}	AIR $\frac{1000\ ft^3}{lb\ BOD}$	QUANTITY 10^3 gallons	TOTAL SOLIDS %	VOL. SOLIDS %	QUANTITY 10^3 gallons	TOTAL SOLIDS %	VOL. SOLIDS %	T. S. %	AMOUNT HAULED cubic yards
JAN	240	688	2.8	47	30	1030	.25	4.5	51	7.1	46	16	7.8	41		96
FEB	60	448	2.1	22	42	1460	.08	1.5	65	5.6	45	22	8.4	36		132
MAR	30	486	1.6	28	45	1520	.13	20.8	89	4.6	45	22	9.0	36		132
APR	0	503	1.9		43	1300			67	5.2	46	36	7.9	36		216
MAY	100	759	2.5	43	45	1460	.20	4.4	88	5.5	40	48	7.4	35		288
JUNE	220	807	3.8	83	33	1420	.30	2.7	82	6.4	44	52	7.7	32		312
JULY	100	854	4.2	59	55	1400	.20	4.6	51	5.2	51	56	6.0	36		336
AUG	0	848	4.7	63	71	1500	.17	4.4	64	6.5	49	54	7.0	40		324
SEPT	0	878	5.5	76	79	1600	.18	4.0	70	5.6	56	52	4.9	43		312
OCT	40	845	5.6	92	94	1700	.19	3.6	102	5.1	57	54	4.9	48		324
NOV	200	1028	6.3	59	79	1700	.13	5.1	79	5.3	59	58	4.8	46		348
DEC	0	1113	5.0	50	60	1600	.16	4.6	74	5.5	61	50	5.6	46		300
TOTAL	990	9257	-	-	-	-	-	-	882	-	-	520	-	-	-	3120
AVG.	3.7 cu. ft/mil gal	771	3.5	59	63	1500	.11	5.5	74	5.6	50	43	6.5	41		260

Date Due

LAB

PRINTED IN CANADA

LABORATORY LIBRARY
96936000119882